

DDD PARIS

LEGACY CLUB VS. DDD REBOOT

DEATH MATCH



DEVELOPER

@brunoboucard



DEVELOPER

@tpierrain



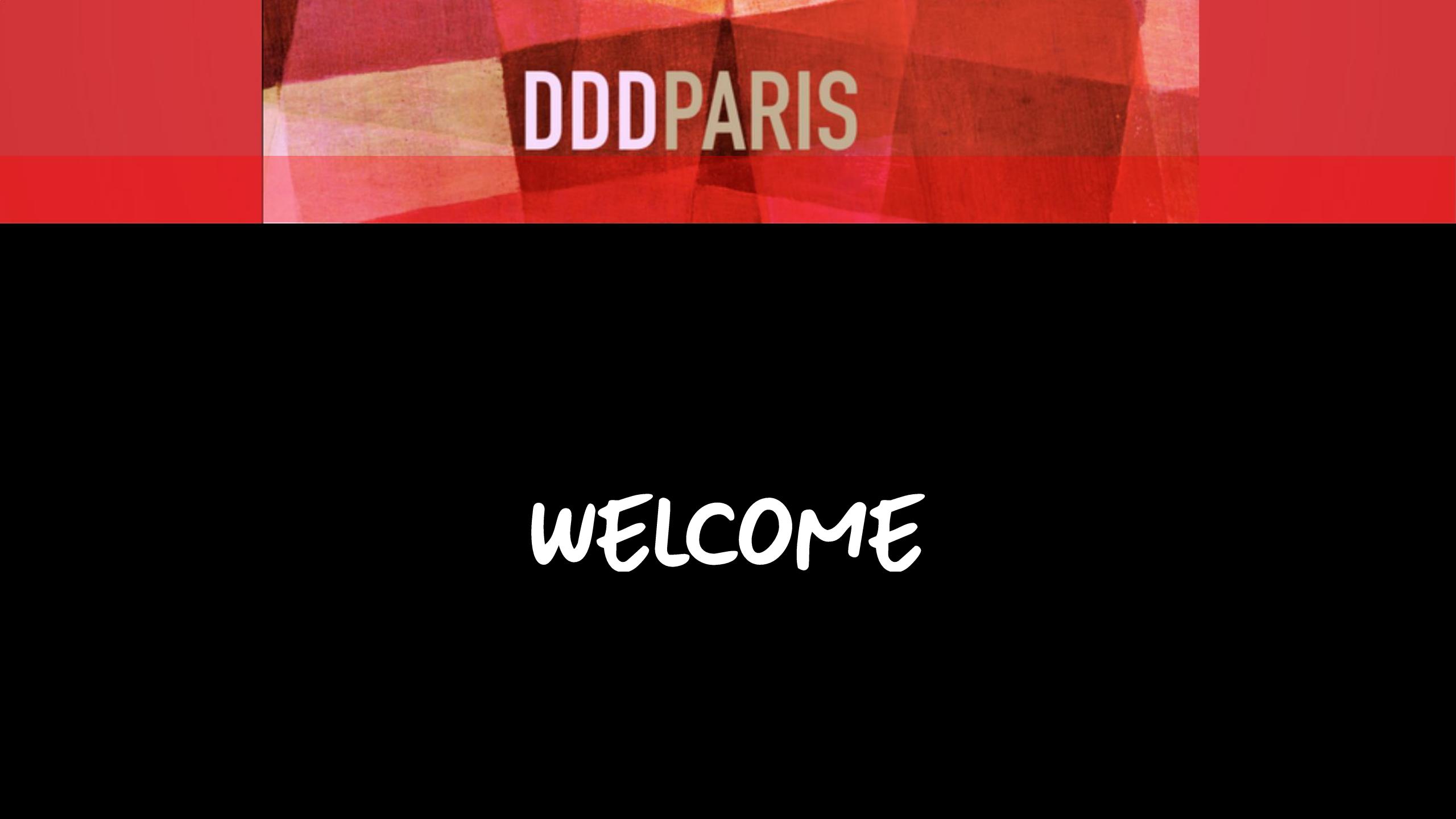
DOMAIN EXPERT

@jgrodziski

L'APRÈS-MIDI DU DOMAIN-DRIVEN DESIGN

MERCREDI 7 JUIN 2017

CENTRE DE CONFÉRENCE MICROSOFT FRANCE



DDD PARIS

WELCOME

DDD PARIS

SPONSORS

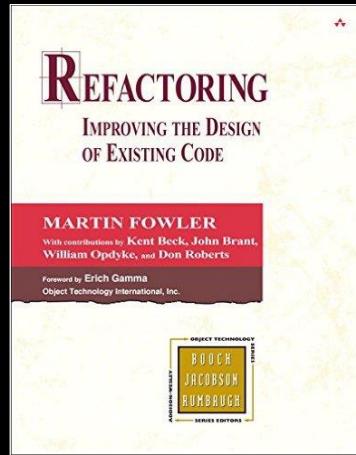
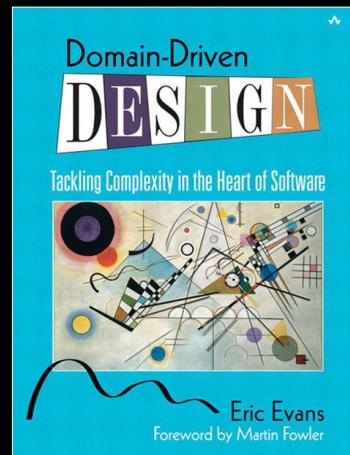
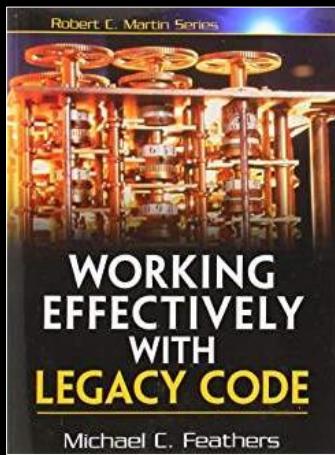


42skillz[®]

DDD PARIS

KEYNOTE

WE HAVE SOME GIFTS FOR YOU



#AMDDD

DDD PARIS

- MENU -

KEYNOTE

TEST HARNESS (LIVE CODING)

PAUSE

DDD ALL THE WAY (LIVE CODING)

PAUSE

HEXAGONAL ARCHITECTURE FTW! (LIVE CODING)

WRAP-UP AND GIFTS

DDD PARIS

KEYNOTE

WHY DOMAIN-DRIVEN DESIGN IS SO RELEVANT TODAY?



JÉRÉMIE GRODZISKI

DDD PARIS

TRAIN-TRAIN

OUR DOMAIN FOR TODAY





DDD PARIS

TRAIN-TRAIN

THE CONTEXT

US:

TRAIN-TRAIN. THE
STARTUP

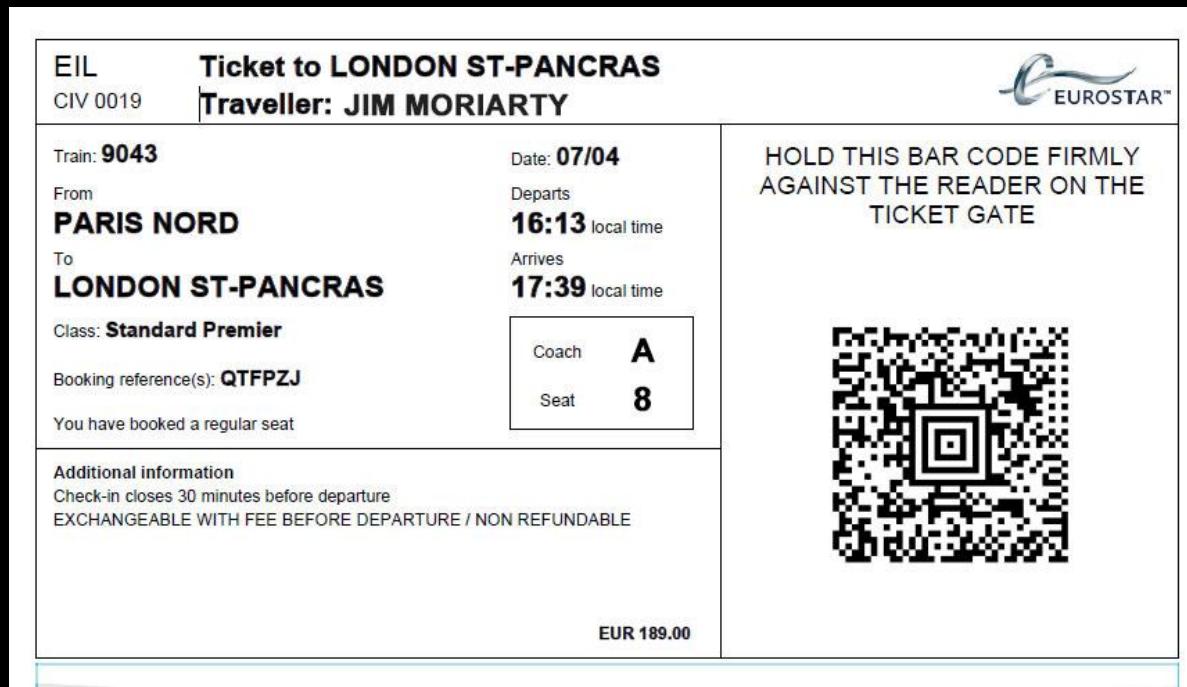
IN FRONT OF:

HASSAN-CEHEF. THE
TRAIN OPERATOR

DDD PARIS

TRAIN-TRAIN

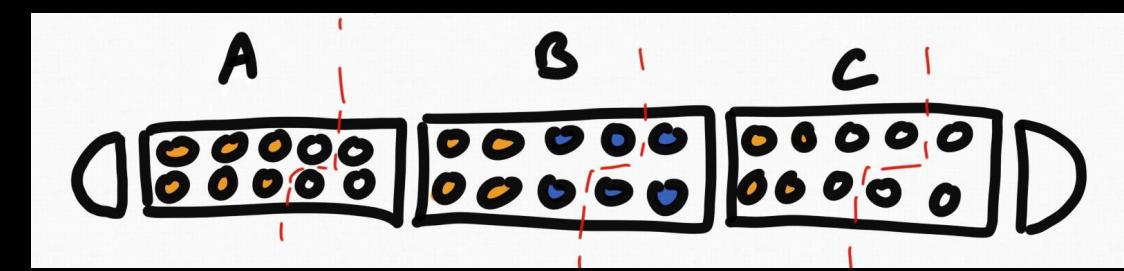
OUR DOMAIN FOR TODAY



DDD PARIS

TRAIN-TRAIN

OUR DOMAIN FOR TODAY





DDD PARIS

TRAIN-TRAIN

SITUATION TODAY

- A V1 HAS BEEN RELEASED FEW MONTH AGO
- NEW RULE TO BE IMPLEMENTED
- RECURRENT PENALTIES FROM THE OPERATOR
- EVOLUTION COST HAS RISEN

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TRAIN-TRAIN

THE CREW

THE DOMAIN GUY



THE TECHIES





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TRAIN-TRAIN

CHALLENGES

- TRAIN FILLING OPTIMIZATIONS
- INTEGRATION WITH 2 HASSAN CEHEF BACKENDS



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TRAIN-TRAIN

BIZ RULES^(*)

- FOR A TRAIN OVERALL. NO MORE THAN 70 PERCENT SEATS MAY BE RESERVED IN ADVANCE
- YOU MUST PUT ALL THE SEATS FOR ONE RESERVATION IN THE SAME COACH

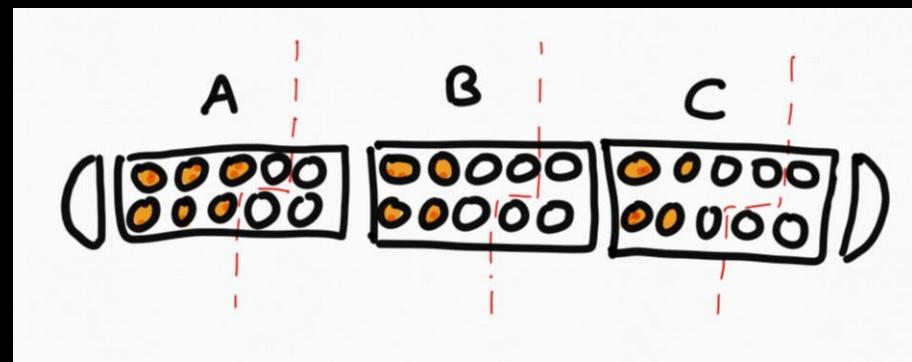
(*) FROM EMILY BACHE'S TRAIN RESERVATION KATA

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TRAIN-TRAIN

OUR MISSION

"IDEALLY, NO INDIVIDUAL COACH SHOULD HAVE NO MORE THAN 70 PERCENT RESERVED SEATS EITHER"



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TRAIN-TRAIN

OUR WEB API

HttpRequester

REQUEST

URL

POST GET PUT

New request Paste Request Authentication...

Content to Send Headers Parameters

Content Type: application/json

Content Options: Base64 Parameter Body

Content File

```
{"train_id": "9043-2017-04-07", "number_of_seats": 10}
```

ASK 10 SEATS FOR TRAIN ...

RESPONSE

POST on http://localhost:53168/api/reservations

Status: 200 OK

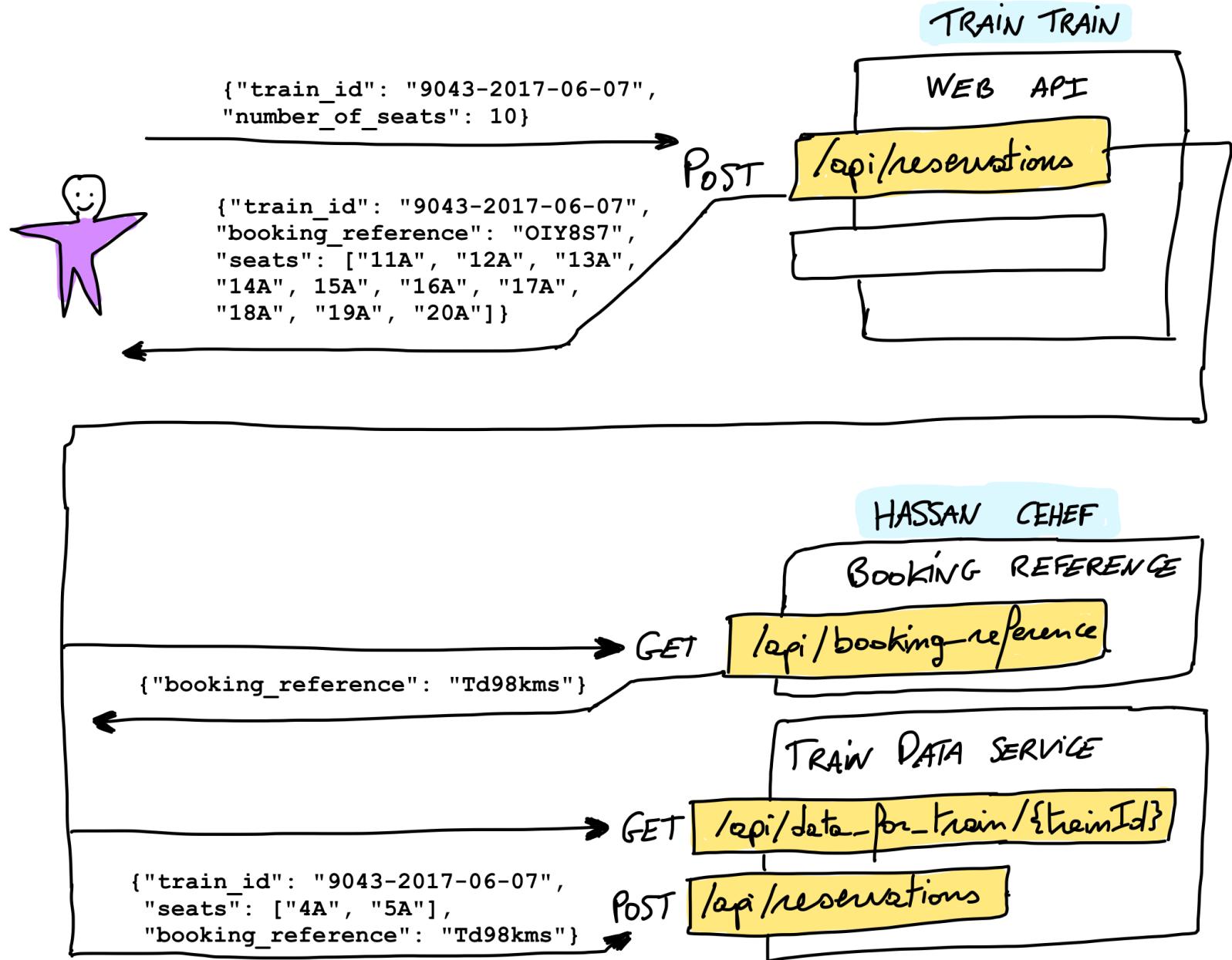
Browser Text Pretty format [View raw transaction](#)

```
{"train_id": "9043-2017-04-07", "booking_reference": "0IY8S7", "seats": ["11A", "12A", "13A", "14A", "15A", "16A", "17A", "18A", "19A", "20A"]}
```

HEADERS

GOT THIS ANSWER

BEHIND THE CURTAIN





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TRAIN-TRAIN

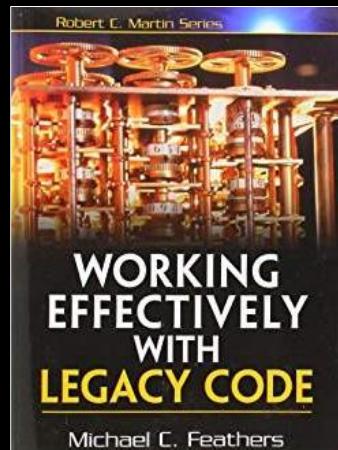
DEMO!

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EPISODE 1:

WE NEED A TEST HARNESS!



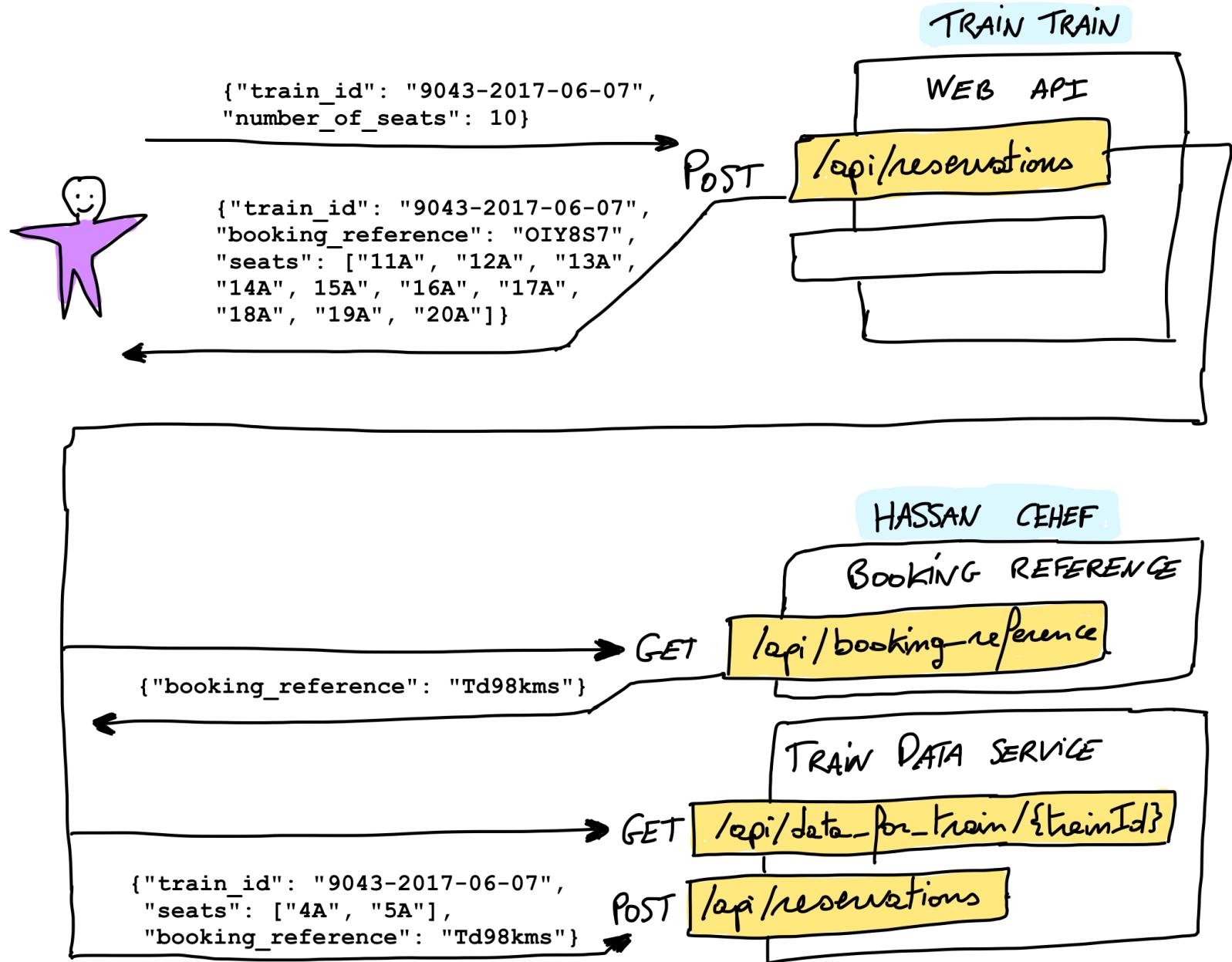
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TRAIN-TRAIN

LET'S DIVE INTO THE CODE



ARCHITECTURE





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TRAIN-TRAIN

OUR SYSTEM IS REQUESTED LIKE...

I WANT 3 SEATS FOR TRAIN 9...

```
{"train_id": "9043-2017-04-07", "number_of_seats": 3}
```



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TRAIN-TRAIN

OUR SYSTEM ANSWERS LIKE...

WHEN RESERVATION **SUCCEED**

```
{"train_id": "1434-2017-06-07", "booking_reference": "75bcd15", "seats": ["1A", "1B"]}
```

WHEN RESERVATION **FAIL**

```
{"train_id": "1434-2017-06-07", "booking_reference": "", "seats": []}
```



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TRAIN-TRAIN

TIME TO ADD OUR FIRST
ACCEPTANCE TESTS



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TRAIN-TRAIN

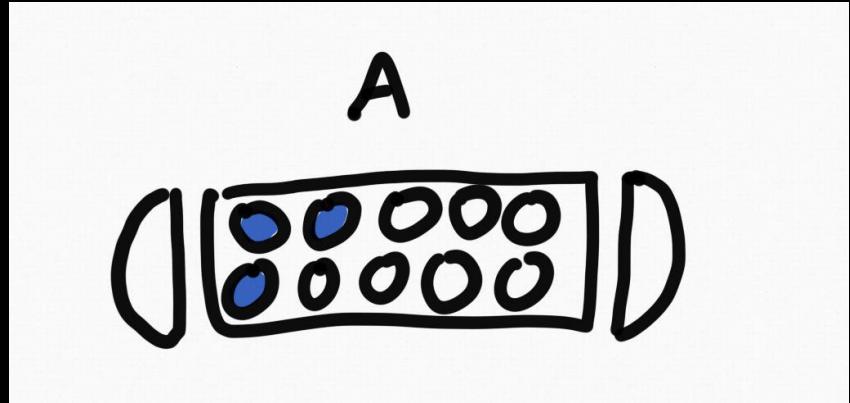
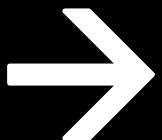
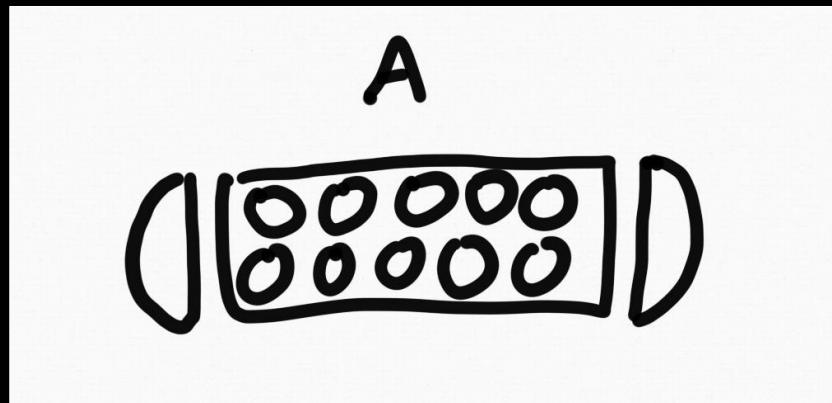
TEST #1

SIMPLE RESERVATION

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TEST #1 - SIMPLE RESERVATION



I WANT 3 SEATS

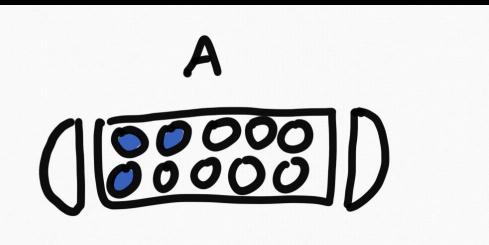
DDD PARIS

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TEST #1 - SIMPLE RESERVATION

EXPECTED RESULT

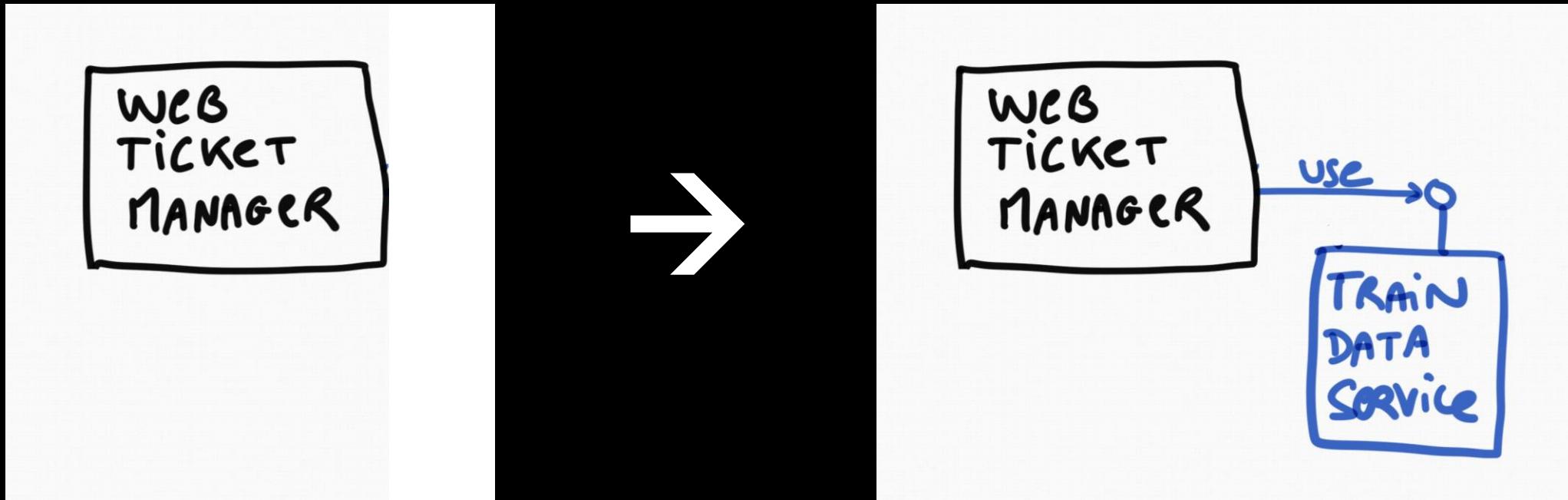
```
{"train_id": "9043-2017-06-07", "booking_reference": "75bcd15", "seats": ["1A", "2A", "3A"]}
```



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WE NEED SOMETHING TO BE STUBBED!





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HOW HASSAN-CEHEF PROVIDES TRAIN TOPOLOGIES

```
{"seats": {"1A": {"booking_reference": "", "seat_number": "1", "coach": "A"}, "2A": {"booking_reference": "", "seat_number": "2", "coach": "A"}}}
```





DDD PARIS

TRAIN-TRAIN

HOW HASSAN-CEHEF PROVIDES BOOKING REFERENCES

You can use this service to get a unique booking reference. Make a GET request to:

```
http://localhost:8082/booking_reference
```

This will return a string that looks a bit like this:

```
75bcd15
```



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TRAIN-TRAIN

NEXT!

DDD PARIS

TRAIN-TRAIN

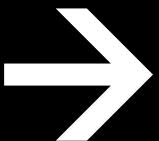
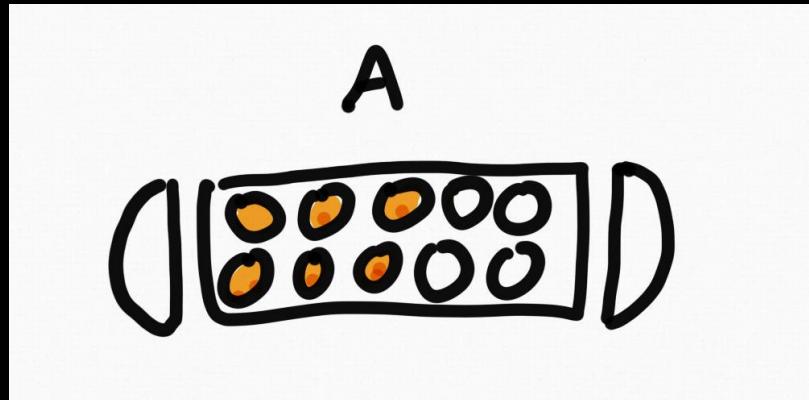
TEST #2

THIS TRAIN IS FULL...

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TRAIN-TRAIN

TEST #2 - THIS TRAIN IS FULL



CAN'T EXCEED
70 PERCENT OF TRAIN
CAPACITY!

I WANT 2 SEATS



DDD PARIS

TRAIN-TRAIN

TEST #2 - THIS TRAIN IS FULL

CAN'T EXCEED
70 PERCENT OF TRAIN
CAPACITY!



```
{"train_id": "1434-2017-06-07", "booking_reference": "", "seats": []}
```



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TRAIN-TRAIN

NEXT!



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TRAIN-TRAIN

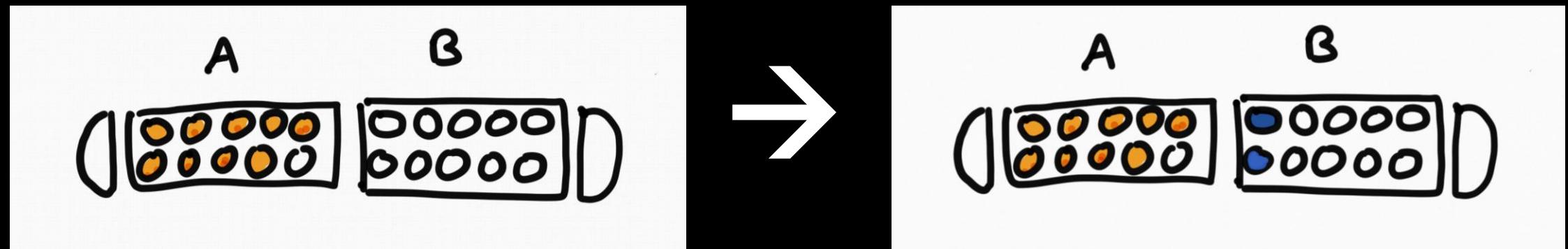
TEST #3

ALL SEATS IN THE SAME COACH
PLEASE!

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TRAIN-TRAIN

TEST #3 – SAME COACH PLEASE!



I WANT 2 SEATS



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TRAIN-TRAIN

HOUSTON?

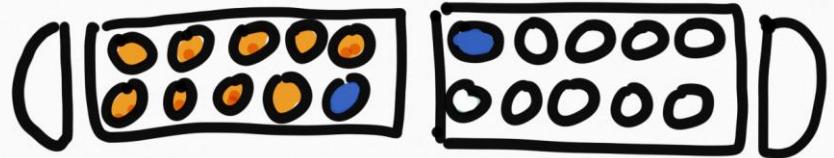
DDD PARIS

TRAIN-TRAIN

TEST #3 – SAME COACH PLEASE!

A

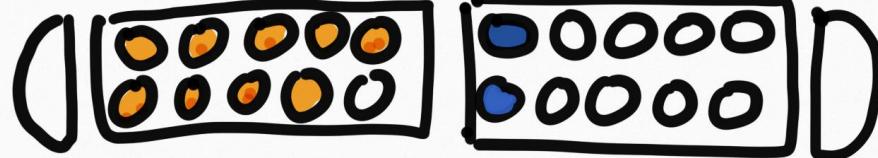
B



WHAT WE HAVE...

A

B



WHAT WE SHOULD HAVE



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TRAIN-TRAIN

FIX THAT BUG?

OR

ADD THE FEATURE?



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TRAIN-TRAIN

15 MINUTES PAUSE

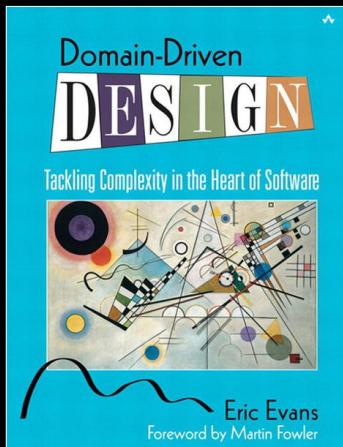
NEXT: DDD

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TRAIN-TRAIN

EPISODE 2:

WHERE IS THE DOMAIN?!?



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TRAIN-TRAIN

REMEMBER THE BUG?





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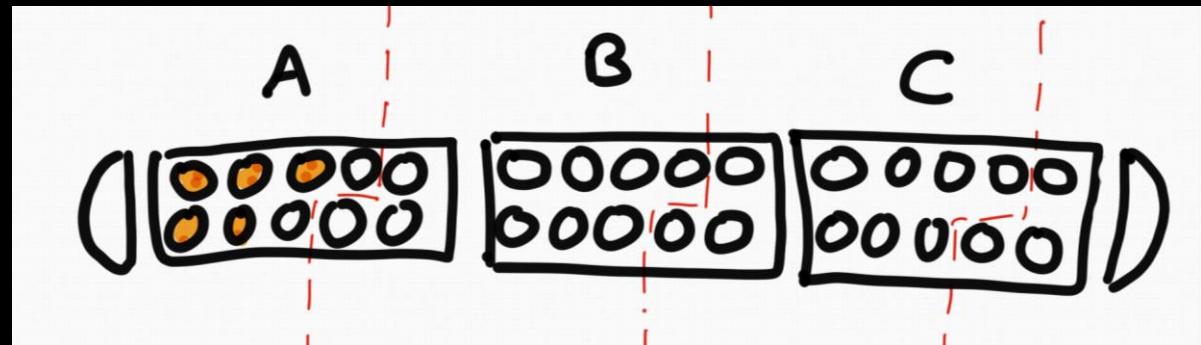
TRAIN-TRAIN

NEXT!

DDD PARIS

TRAIN-TRAIN

TEST #4 - IDEALLY. NO MORE THAN 70% OF COACH

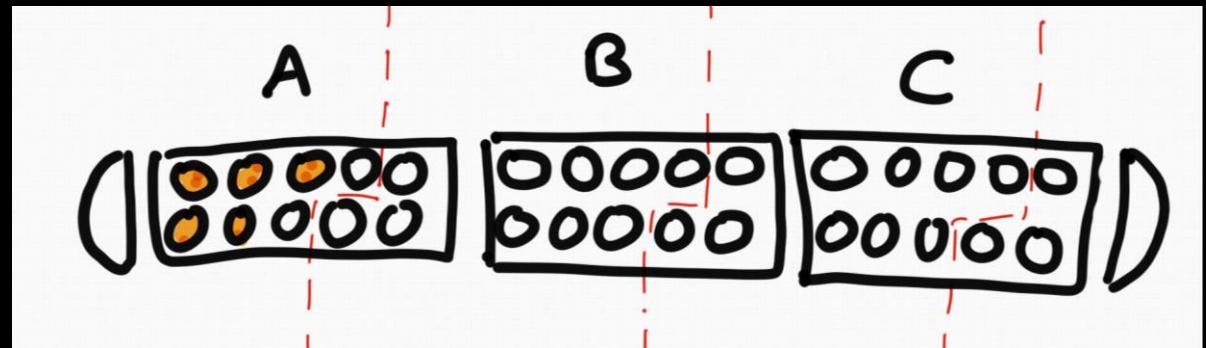


I WANT 3 SEATS

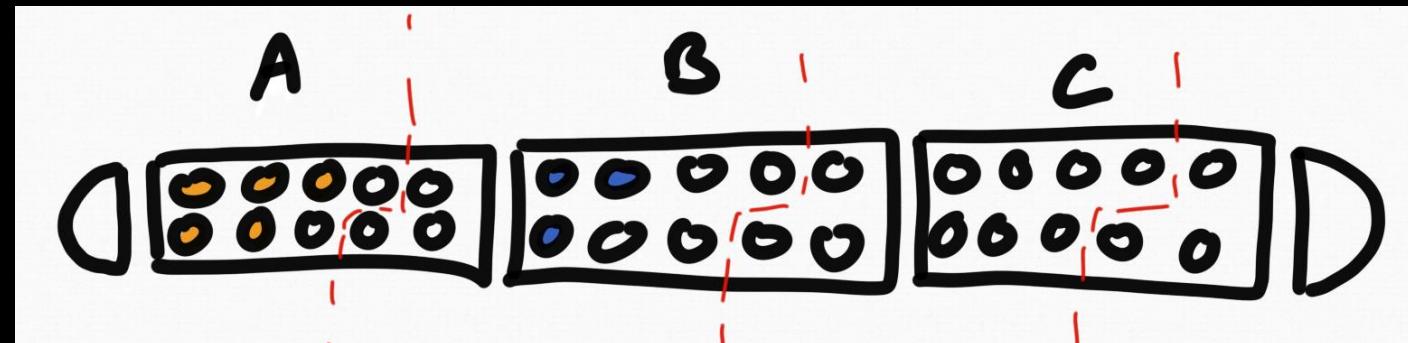
DDD PARIS

TRAIN-TRAIN

TEST #4 - IDEALLY. NO MORE THAN 70% OF COACH



I WANT 3 SEATS
↓





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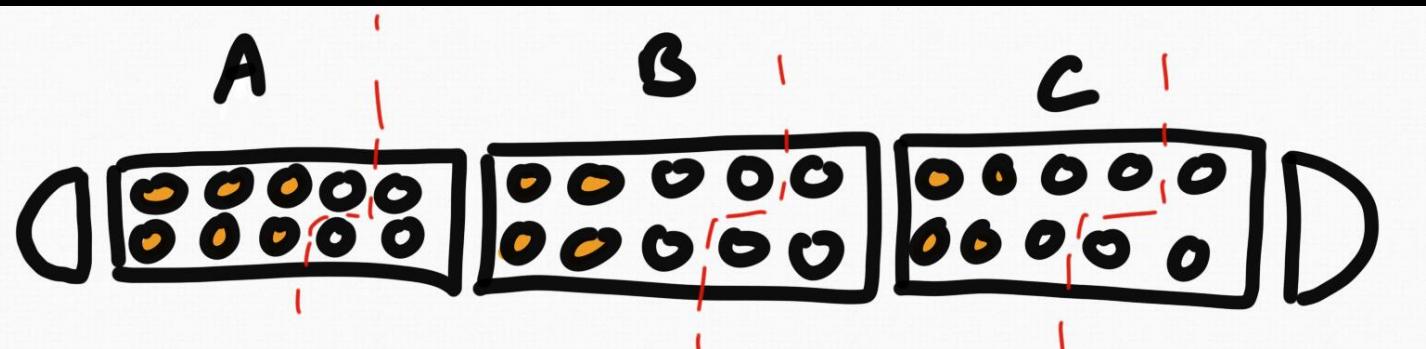
TRAIN-TRAIN

NEXT!

DDD PARIS

TRAIN-TRAIN

TEST #5 – NON IDEAL CASE

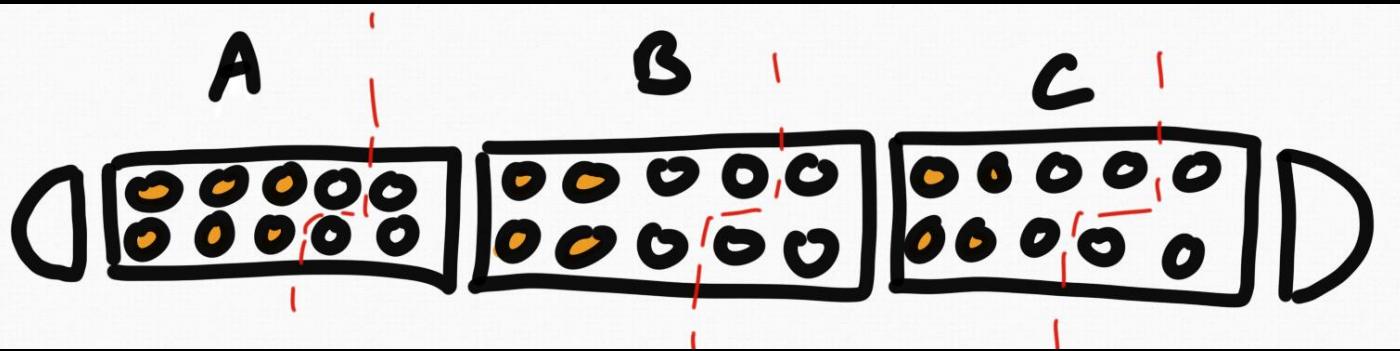


I WANT 6 SEATS

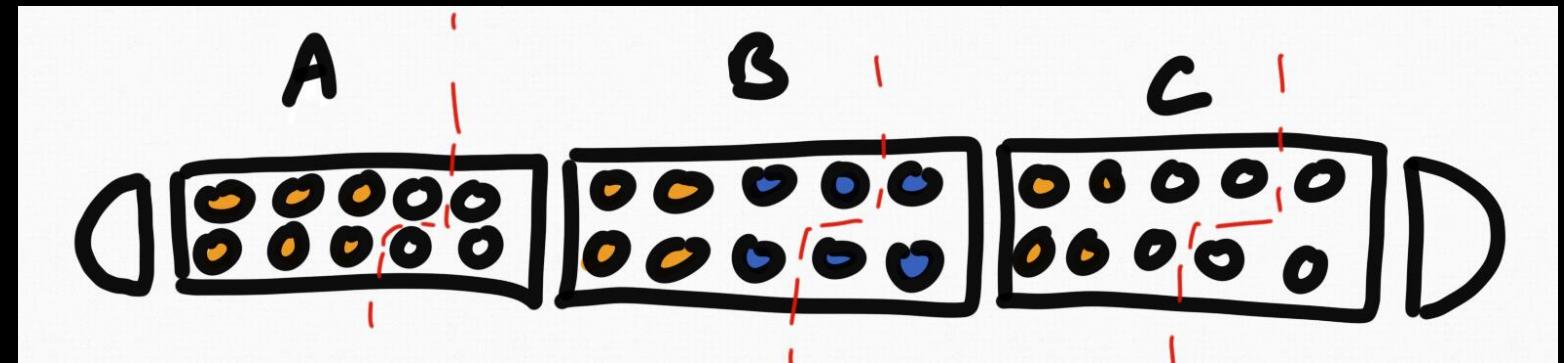
DDD PARIS

TRAIN-TRAIN

TEST #5 – NON IDEAL CASE



I WANT 6 SEATS





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TRAIN-TRAIN

MISSION ACCOMPLISHED :-)



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SOME DDD PATTERNS

LET'S ZOOM 1 SECOND



DDD PARIS

SOME DDD PATTERNS

ENTITY

OR

VALUE TYPE?



DDD PARIS

SOME DDD PATTERNS

ENTITY

HAVE IDENTITY AND LIFECYCLE
MUTABLE
IDENTIFIER EQUALITY



DDD PARIS

SOME DDD PATTERNS

VALUE TYPE

NO IDENTITY

IMMUTABLE

EQUALITY BY PROPERTIES

DDD PARIS

SOME DDD PATTERNS

ENTITY

-
- HAVE IDENTITY AND LIFECYCLE
- MUTABLE
- IDENTIFIER EQUALITY

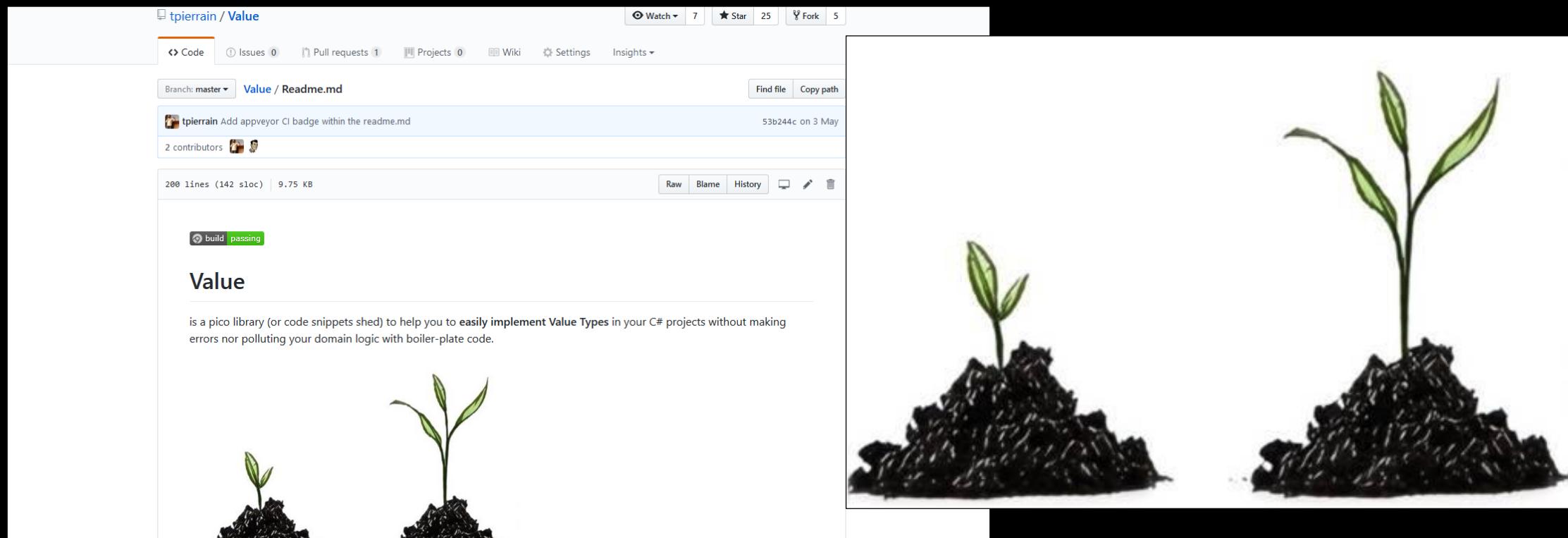
VALUE TYPE

-
- NO IDENTITY
- IMMUTABLE
- EQUALITY BY PROPERTIES

DDD PARIS

SOME DDD PATTERNS

VALUE TYPES POWERED BY "VALUE"



A screenshot of a GitHub repository page for the project "Value". The repository has 7 stars, 25 forks, and 5 issues. The README.md file contains the following text:

```
Value
is a pico library (or code snippets shed) to help you to easily implement Value Types in your C# projects without making errors nor polluting your domain logic with boiler-plate code.
```

Below the repository details, there are two small, hand-drawn style illustrations of green plants with two leaves each, growing out of dark brown piles of soil.



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SOME DDD PATTERNS

CLOSURE OF OPERATION

WHERE IT FITS. DEFINE AN OPERATION WHOSE RETURN
TYPE IS THE SAME AS THE TYPE OF ITS ARGUMENT(S)



DDD PARIS

SOME DDD PATTERNS

CLOSURE OF OPERATION

-

IN OTHER WORD:
YOU CAN COUNT ONLY ON YOURSELF :-)



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SOME DDD PATTERNS

CLOSURE OF OPERATION

-

DO YOU SEE THE BENEFITS?



DDD PARIS

SOME DDD PATTERNS

CLOSURE OF OPERATION

LIMITED COUPLING BABY!
(EASIER TO "MOVE" FOR INSTANCE)



DDD PARIS

SOME DDD PATTERNS

AGGREGATE

COLLECTION OF ENTITIES AND VALUE TYPES
TREATED AS A CONCEPTUAL WHOLE



DDD PARIS

SOME DDD PATTERNS

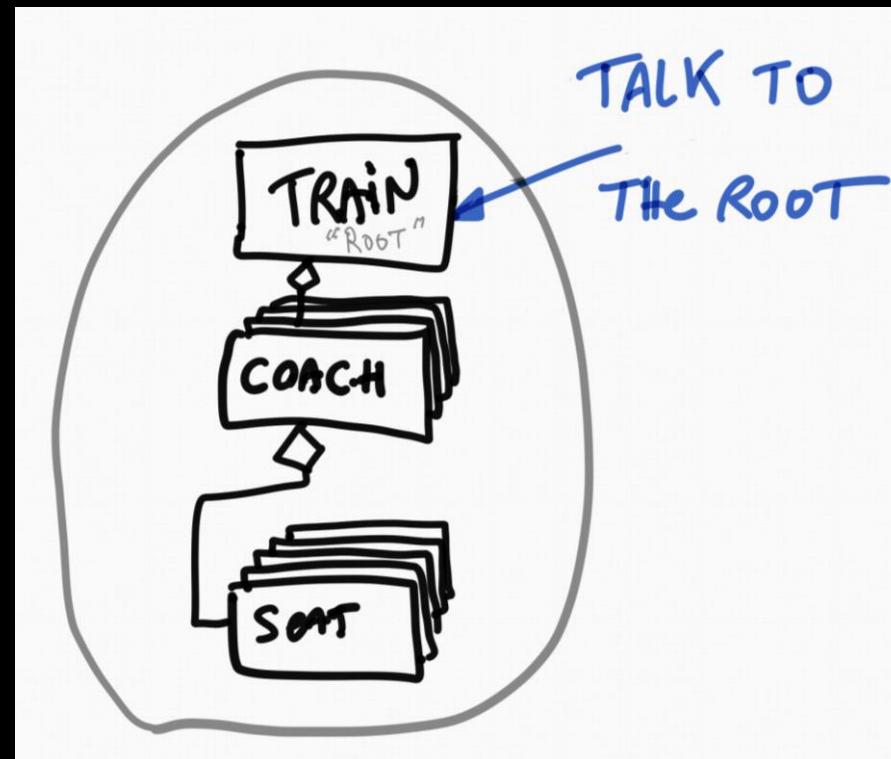
AGGREGATES IN HERE?

DDD PARIS

SOME DDD PATTERNS

AGGREGATES

AGGREGATES NEEDS
INVARIANTS





DDD PARIS

TRAIN-TRAIN

15 MINUTES PAUSE

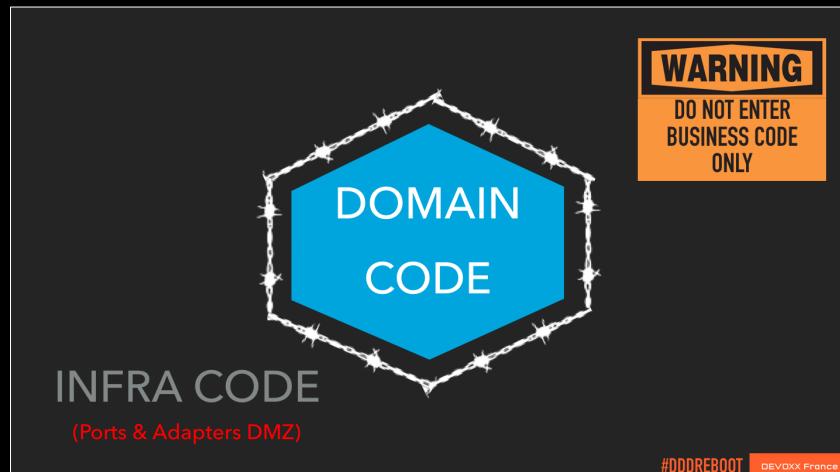
NEXT: HEXAGONAL ARCHITECTURE

DDD PARIS

TRAIN-TRAIN

EPISODE 3:

HEXAGONAL ARCHITECTURE FTW!





DDD PARIS

HEXAGONAL ARCHITECTURE

HEXAGONAL ARCHITECTURE?

DDD PARIS

HEXAGONAL ARCHITECTURE

ALISTAIR COCKBURN





DDD PARIS

MANY BENEFITS

HEXAGONAL ARCHITECTURE

EMBRACE CHANGE
PROTECT YOUR DOMAIN CODE
ENFORCE TESTABILITY



DDD PARIS

MANY BENEFITS

HEXAGONAL ARCHITECTURE

EMBRACE CHANGE

TODAY >> PROTECT YOUR DOMAIN CODE << TODAY
ENFORCE TESTABILITY



DDD PARIS

HEXAGONAL ARCHITECTURE

HOW?

DDD PARIS

HEXAGONAL ARCHITECTURE



INSIDE

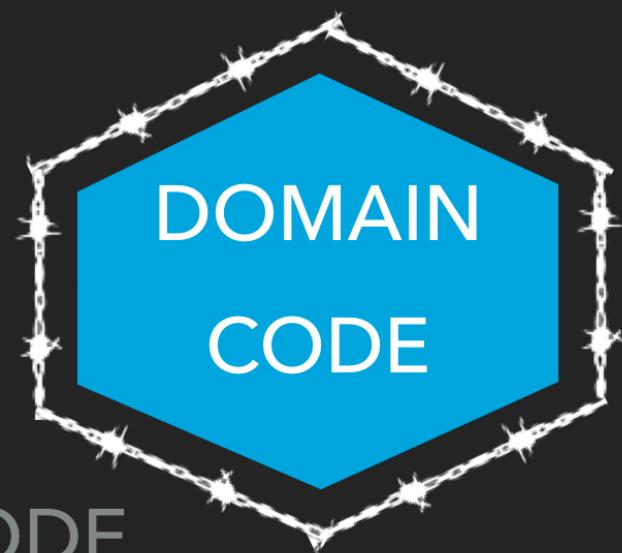
OUTSIDE

#DDDREBOOT

DEVOXX France

DDD PARIS

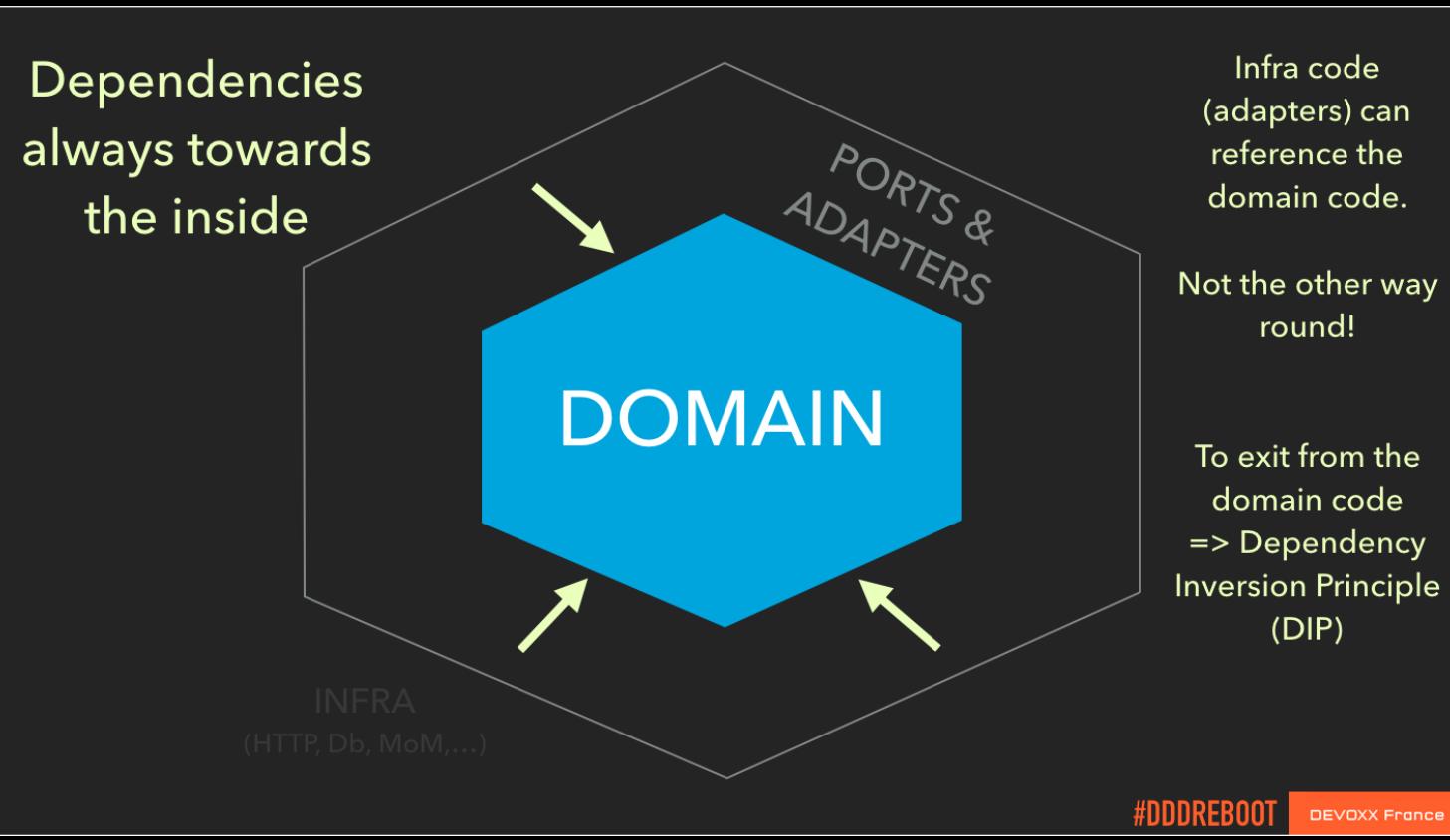
HEXAGONAL ARCHITECTURE



WARNING
DO NOT ENTER
BUSINESS CODE
ONLY

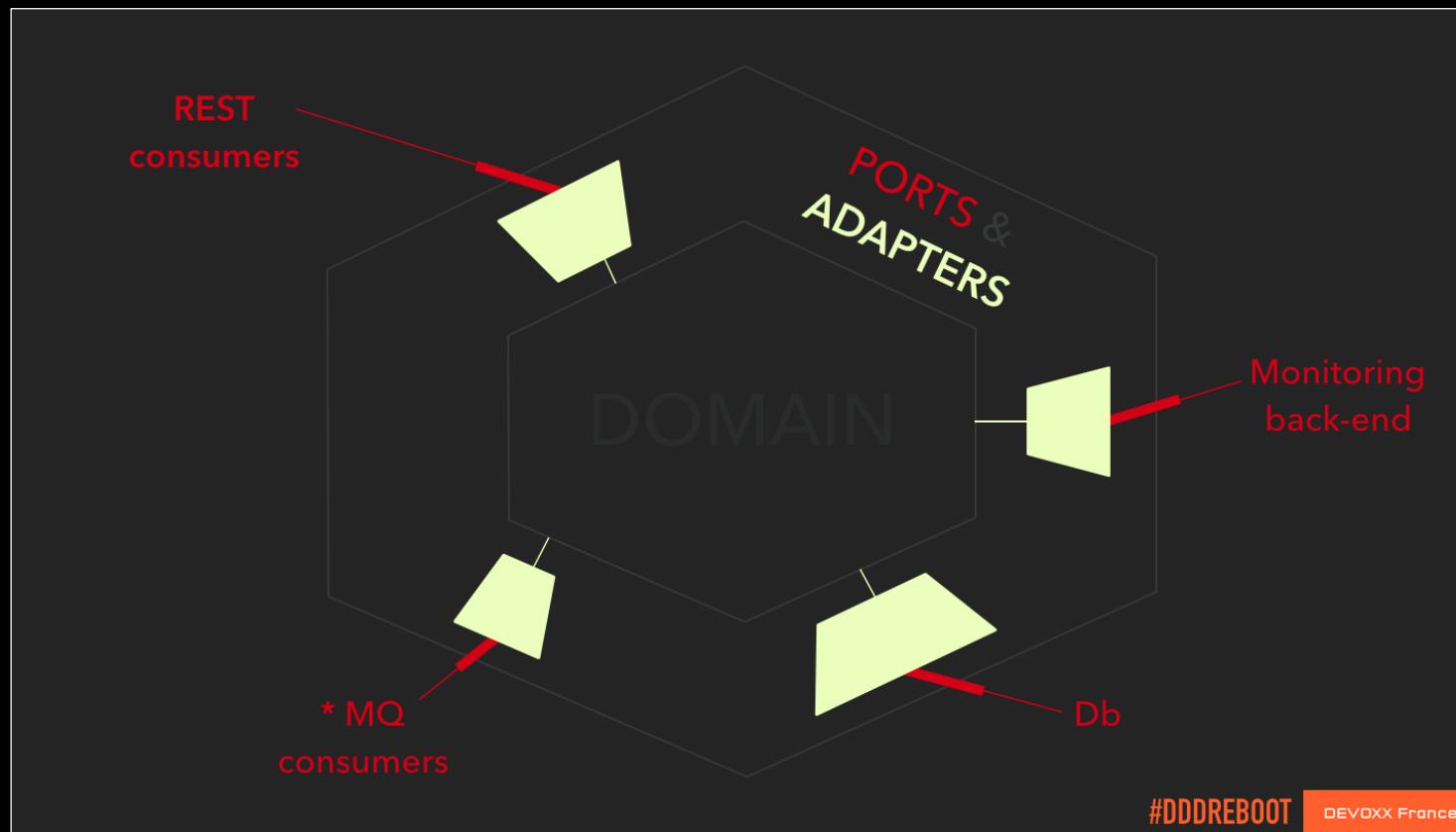
DDD PARIS

HEXAGONAL ARCHITECTURE



DDD PARIS

HEXAGONAL ARCHITECTURE





DDD PARIS

HEXAGONAL ARCHITECTURE

PORTS AND ADAPTERS

TO GO IN

TO GO OUT



DDD PARIS

HEXAGONAL ARCHITECTURE

A 3 STEPS INITIALIZATION

DDD PARIS

HEXAGONAL ARCHITECTURE

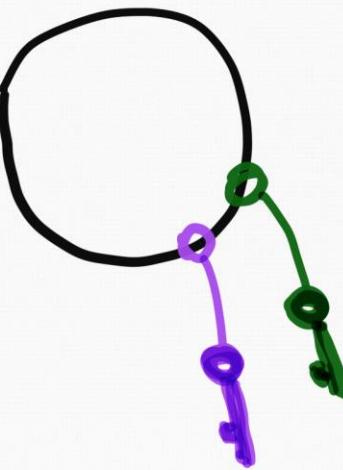
1. INstantiate THE
"I NEED TO GO
OUT" ADAPTERS



DDD PARIS

HEXAGONAL ARCHITECTURE

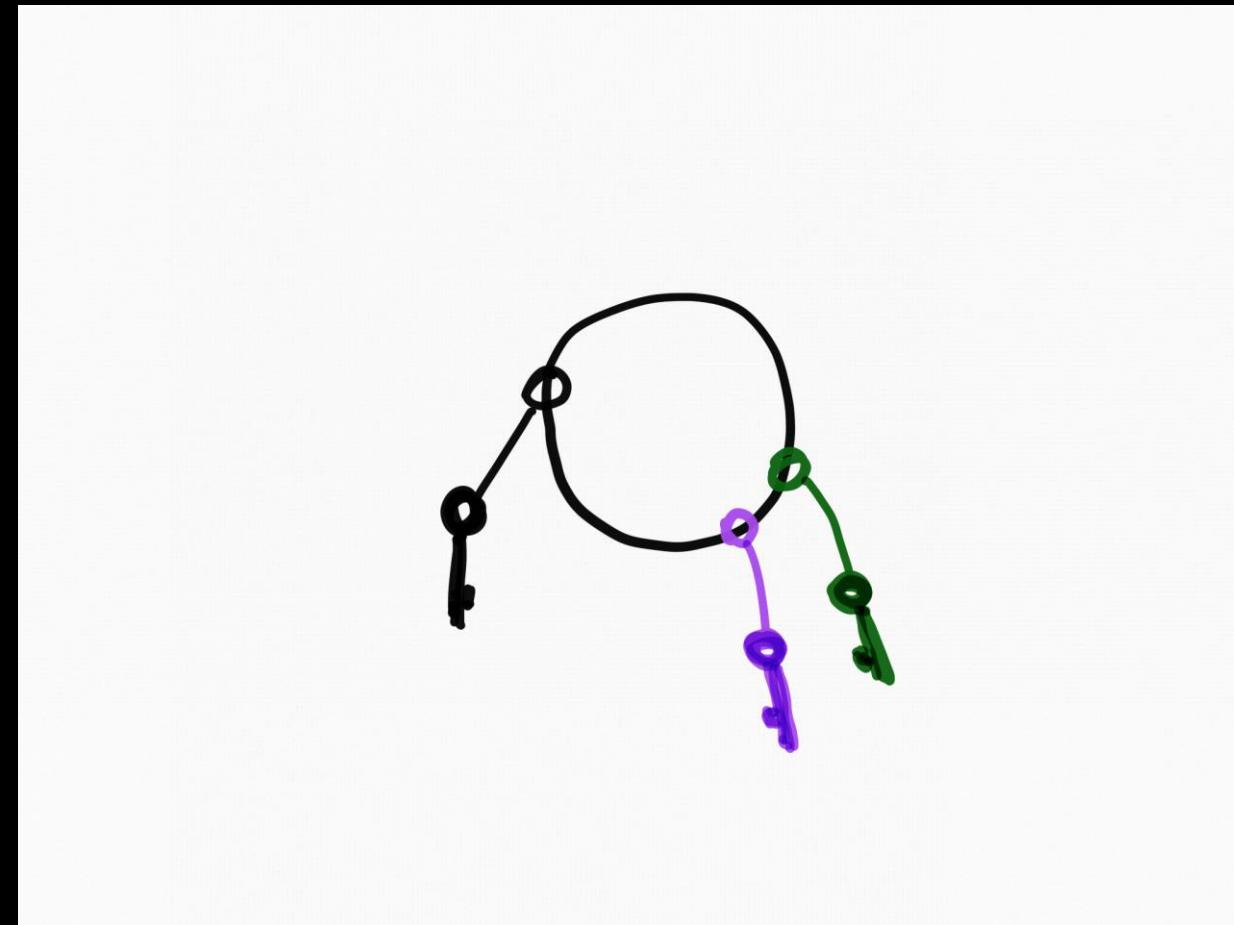
2. INstantiate THE
HEXAGON



DDD PARIS

HEXAGONAL ARCHITECTURE

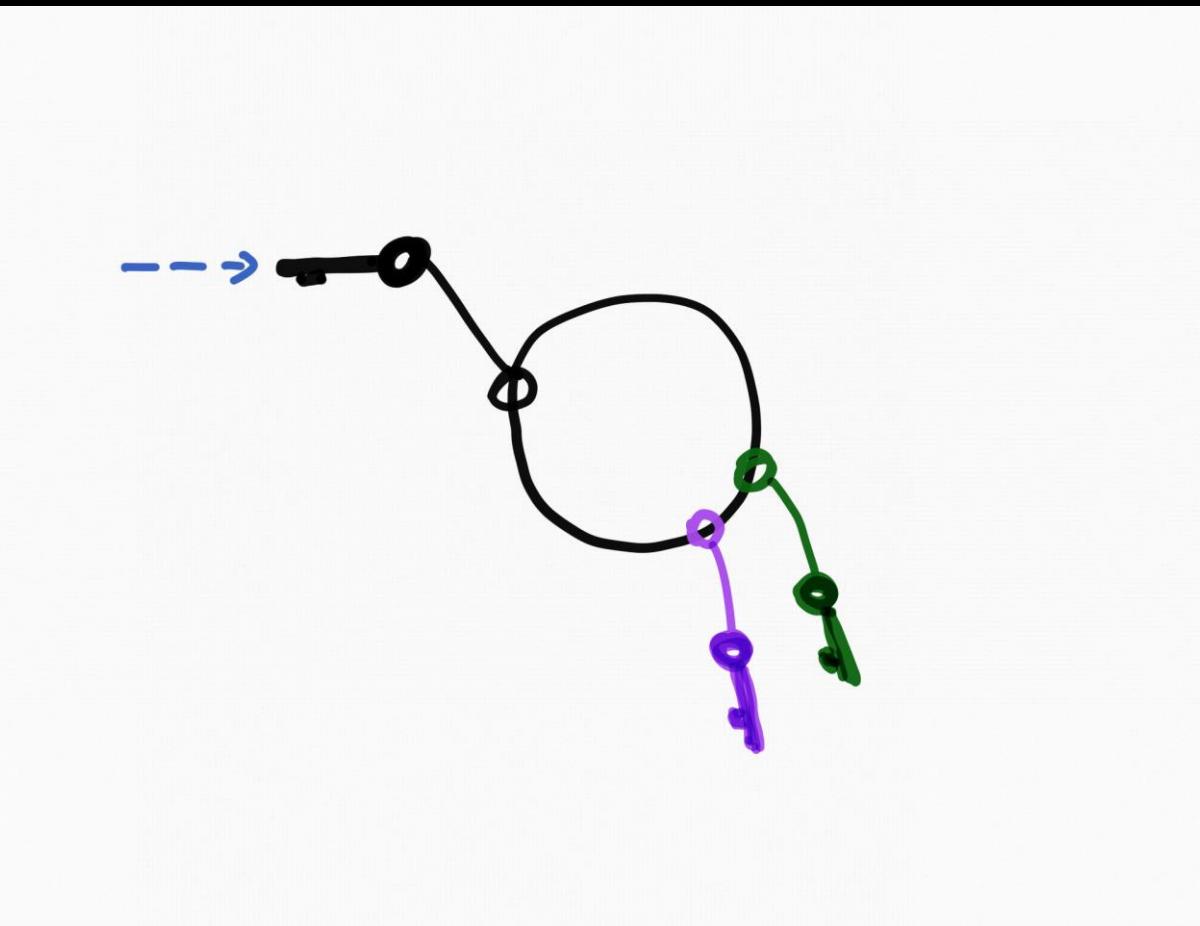
3. INstantiate THE
"I NEED TO ENTER"
ADAPTERS



DDD PARIS

HEXAGONAL ARCHITECTURE

ALL YOU KEEP IN
"YOUR HAND"





DDD PARIS

HEXAGONAL ARCHITECTURE

A 3 STEPS INIT

- 1 - INSTANTIATE THE "I NEED TO GO OUT" ADAPTERS
- 2 - INSTANTIATE THE HEXAGON
- 3 - INSTANTIATE THE "I NEED TO ENTER" ADAPTERS



DDD PARIS

DDD

NEXT!



DDD PARIS

DDD

FINAL WRAP-UP



DDD PARIS

WRAP-UP

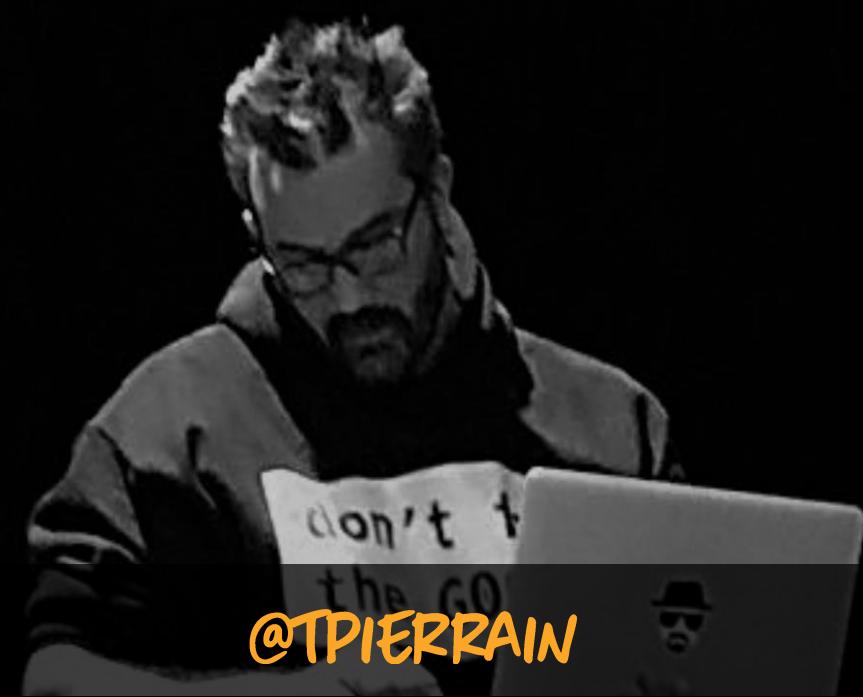
FOCUS ON. HIGHLIGHT AND
PROTECT THE BUSINESS VALUE IN
YOUR CODE!

DDD PARIS

LEGACY CLUB VS. DDD REBOOT



@BRUNOBOUCARD



@TPIERRAIN



@JGRODZISKI

LET'S CONTINUE TO CHAT ON TWITTER



DDD PARIS

WRAP-UP

THAT'S ALL FOLKS.

THANKS!